Why should I trust you? Influence of explanation design on consumer behavior in AI-based services

Florence Nizette[1,2][0009−0004−3269−7858], Wafa Hammedi[1][0000−0001−6871−1675], Allard C.R. van Riel[2][0000−0002−9222−0574], and Nadia Steils[3][0000−0002−9239−3635]

[1] NADI-CeRCLe, Research Center in Marketing and Service Management, UNamur School of Business, University of Namur, Namur, Belgium
[2] Faculty of Business Economics, Hasselt University, Hasselt, Belgium
[3] Department of Strategic Marketing Innovation, HEC Liège School of Management, University of Liège, Liège, Belgium

Abstract. This study explores how the format of explanations used in artificial intelligence (AI)-based services affects consumer behavior, specifically the effects of explanation detail (low vs. high) and consumer control (automatic vs. on demand) on trust and acceptance. The aim is to provide service providers with insights into how to optimize the format of explanations to enhance consumer evaluations of AI-based services. Drawing on the literature on explainable AI (XAI) and information overload theory, a conceptual model is developed. To empirically test the conceptual model, two between-subjects experiments were conducted wherein the level of detail and level of control were manipulated, taking AI-based recommendations as a use case. The data were analyzed via partial least squares (PLS) regressions. The results reveal significant positive correlations between level of detail and perceived understanding and between level of detail and perceived assurance. The level of control negatively moderates the relationship between the level of detail and perceived understanding. Further analyses revealed that the perceived competence and perceived integrity of AI systems positively and significantly influence the acceptance and purchase intentions of AI-based services. This research offers service providers key insights into how tailored explanations and maintaining a balance between detail and control build consumer trust and enhance AI-based service outcomes. This article elucidates the nuanced interplay between the level of detail and control over explanations for non-expert consumers in high-credence service sectors. The findings offer insights into the design of more consumer-centric explanations to increase the acceptance of AI-based services.

Keywords: Design · Recommendations · Credence services · AI · XAI · Explanations

1 Introduction

This study investigates how the format of explanations in artificial intelligence (AI)-based services shapes consumer perceptions and behaviors. Specifically, it

examines the effects of explanation detail (low vs. high) and consumer control (automatic vs. on-demand) on perceived understanding, assurance, trust, acceptance and purchase intention. By doing so, the study aims to provide actionable insights for service providers seeking to optimize explanatory strategies that enhance consumer evaluations of AI-based services in high-credence contexts.

2 Method

Building on research in explainable AI (XAI) and information overload, a conceptual model was developed [1, 8]. Two between-subjects experiments were conducted, manipulating explanation detail and consumer control in the context of AI-based services. Data was analyzed using partial least squares (PLS) regression to assess direct, moderating and mediating effects.

3 Results

The results reveal that detailed explanations significantly improve perceived understanding and assurance, which in turn enhance consumer trust, acceptance and purchase intention. Importantly, consumer control over explanations negatively moderates the relationship between detail and understanding: when consumers are given high control, the benefits of detailed explanations diminish, likely due to perceived information load. The analyses further show that perceived assurance emerges as a key antecedent of trust, enhancing perceptions of AI competence and integrity.

4 Discussion and conclusion

This study makes four contributions. First, it advances a consumer-centric perspective on XAI, highlighting explanations as a mechanism to reduce resistance to AI in high-credence services [2, 3]. Second, it extends the literature on information overload by showing that detailed explanations can increase trust and acceptance when consumer control is limited, challenging assumptions that detail necessarily overwhelms consumers [5]. Third, it identifies perceived assurance as a critical mediating mechanism linking explanations to trust, thus extending prior work on XAI and trust formation [4]. Finally, it offers a nuanced account of how the dimensions of trust (competence, integrity and human centricity) are shaped by explanation design. For managers, the findings highlight the importance of tailoring explanatory strategies by balancing detail with control. Service providers should prioritize clear, detailed explanations that reveal the rationale behind AI services while carefully managing the degree of consumer control. This research contributes to the emerging discourse on consumer-centric XAI by elucidating the interplay between explanation detail and control, particularly in high-credence services where consumers rely heavily on provider expertise. By demonstrating the important role of perceived assurance in trust formation,

the study offers new insights into designing explanations that inform and also reassure consumers, thereby increasing their acceptance of AI-based services [6, 7].

Acknowledgments. This study was funded by the Special Research Fund (BOF-FSR) [BOF22DOCNA02] at Hasselt University and the University of Namur (Belgium).

References

1. Bauer, K., von Zahn, M., Hinz, O.: Expl (AI) ned: The impact of explainable artificial intelligence on users' information processing. Information Systems Research, **34**(4), 1582-1602 (2023)
2. Chen, C., Tian, A.D., Jiang, R.: When post hoc explanation knocks: consumer responses to explainable AI recommendations. Journal of Interactive Marketing **59**(3), 234-250 (2024)
3. Gaczek, P., Pozharliev, R., Leszczynski, G., Zielinski, M.: Overcoming consumer resistance to AI in general health care. Journal of Interactive Marketing **58**(2-3), 321-338 (2023)
4. Haque, A.K.M.B., Islam, A.K.M.N., Mikalef, P.: Explainable artificial intelligence (XAI) from a user perspective: a synthesis of prior literature and problematizing avenues for future research. Technological Forecasting and Social Change **186**(122120) (2023)
5. He, X., Hong, Y., Zheng, X., Zhang, Y.: What are the users' needs? Design of a user-centered explainable artificial intelligence diagnostic system. International Journal of Human-Computer Interaction **39**(7), 1519-1542 (2023)
6. Kim, M., Kim, S., Kim, J., Song, T.-J., Kim, Y.: Do stakeholder needs differ? - designing stakeholder-tailored explainable artificial intelligence (XAI) interfaces. International Journal of Human-Computer Studies **181**(103160) (2024)
7. Longoni, C., Bonezzi, A., Morewedge, C.K.: Resistance to medical artificial intelligence. Journal of Consumer Research **46**(4), 629-650 (2019)
8. Rai, A.: Explainable AI: from black box to glass box. Journal of the Academy of Marketing Science **48**(1), 137-141 (2020)